

CLAIMS:

- 5 1. A composition comprising a quasi-crystalline hydrated magnesium-aluminium hydroxy carboxylate displaying a reflection in the powder X-ray diffraction pattern in the range of 5 to 15 Å.
- 10 2. The composition of claim 1 which also comprises a hydrated magnesium hydroxy carboxylate or a hydrated aluminium hydroxy carboxylate or both a hydroxy carboxylate and a hydrated aluminium hydroxy carboxylate.
3. The composition of claim 1 which also comprises an aluminium oxide.
4. The composition of claim 1 wherein the carboxylate is acetate or formate.
- 15 5. The composition of claim 1 wherein the magnesium to aluminium molar ratio in the composition ranges from 0.5 to 5.0.
6. The composition of claim 5 wherein the magnesium to aluminium molar ratio in the composition ranges from 0.75 to 5.0.
- 20 7. A process for the preparation of the composition of claim 1 wherein a mixture of an aluminium source and a magnesium carboxylate is aged at a pH in the range of from 3.5 to 6.5.
- 25 8. The process of claim 7 wherein the magnesium carboxylate is magnesium acetate or magnesium formate.
9. The process of claim 7 wherein the aluminium source is an aluminium salt, pseudoboehmite, amorphous aluminium hydroxide gel powder, or a combination thereof.
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10. The process of claim 7 wherein aging occurs under hydrothermal conditions.
11. The process of claim 7 wherein the aging is conducted in two separate steps, one under thermal and one under hydrothermal conditions.
12. The process of claim 7 wherein the process is conducted in a continuous mode.
13. A process for the preparation of an Mg-Al solid solution wherein the composition of claim 1 is calcined at a temperature in the range of 300° to 1200°C.
14. A process for the preparation of an anionic clay wherein the composition of claim 1 is calcined and the calcined product is subsequently rehydrated to obtain an anionic clay.
15. An Mg-Al solid solution obtained by the process of claim 13.
16. An anionic clay obtained by the process of claim 14.
17. A catalyst composition comprising the composition of claim 1.